

WHAT IS CLAIMED IS:

1. A radiation imaging apparatus comprising:
 - a radiation generating source for radiating radiation to a subject;
 - 5 a rotating unit for rotating the subject exposed to the radiation from the radiation generating source;
 - a two-dimensional detector for detecting the radiation; and
 - 10 a calculating unit for calculating a distance between the radiation generating source and the two-dimensional detector.
2. A radiation imaging apparatus comprising:
 - 15 a radiation generating source for radiating radiation to a subject;
 - a rotating unit for rotating the subject exposed to the radiation from the radiation generating source;
 - 20 a two-dimensional detector for detecting the radiation; and
 - a calculating unit for calculating a distance between the radiation generating source and the two-dimensional detector;
 - 25 wherein the radiation generating source and the two-dimensional detector are disposed at locations a distance which is the distance calculated by the

calculating unit.

3. A radiation imaging apparatus comprising:
a radiation generating source for radiating
5 radiation to a subject;

a rotating unit for rotating the subject
exposed to the radiation from the radiation
generating source;

a two-dimensional detector for detecting the
10 radiation;

a calculating unit for calculating a distance
between the radiation generating source and the two-
dimensional detector; and

a radiation generating source moving unit for
15 disposing the radiation generating source and the
two-dimensional detector at locations a distance
which is the distance calculated by the calculating
unit.

20 4. An apparatus according to any one of claims
1 to 3, wherein a cone angle of the radiation from
the radiation generating source is selected to be in
a range between six (6) degrees and ten (10) degrees
based on either of information of the subject and
25 information of imaging conditions, and the
calculating unit calculates the distance between the
radiation generating source and the two-dimensional

detector based on the selected cone angle.

5. An apparatus according to any one of claims
1 to 3, wherein there is provided for the calculating
5 unit an input unit for inputting information of the
subject, such as a height of a lung field, a body
height, and a weight of the subject, and the
calculating unit calculates the distance between the
radiation generating source and the two-dimensional
10 detector based on the information of the subject.

6. An apparatus according to claim 4, wherein
the calculating unit calculates the distance FDD [mm]
between the radiation generating source and the two-
15 dimensional detector based on the following relation

$$FDD=0.5 \times FOV + 0.5 \times HOV / \tan(\Phi/2) \quad [mm]$$

where FOV [mm] is an effective diameter of field of
view, HOV [mm] is a reconstruction height, and Φ
[degree] is the cone angle.

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7. An apparatus according to claim 6, wherein
there is provided for the calculating unit an input
unit for inputting information of the subject, such
as a height of a lung field, a body height, and a
25 weight of the subject, and the calculating unit
calculates the HOV based on the information of the
subject.

8. An apparatus according to any one of claims
1 to 3, wherein the calculating unit calculates the
distance FDD [mm] between the radiation generating
source and the two-dimensional detector based on the
5 following relation

$$FDD = 3417 \times \text{SQRT}(D \times E \times T / 84.6) \quad [\text{mm}]$$

where an anodic heat capacity is equal to or less
than D [KHU], a cooling ability is equal to or less
than E [1/min], and a CT scanning interval is T [min].
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9. An apparatus according to claim 8, wherein
there is provided for the calculating unit an input
unit for inputting information of imaging conditions,
such as an anodic heat capacity, a cooling ability,
15 and a CT scanning interval, and the calculating unit
calculates the FDD based on the information of the
imaging conditions.

10. A radiation imaging apparatus comprising:
20 a radiation generating source for radiating
radiation to a subject;

a rotating unit for rotating the subject
exposed to the radiation from the radiation
generating source; and

25 a two-dimensional detector for detecting the
radiation;

wherein the radiation generating source and the

two-dimensional detector are disposed at locations a distance which is in a range between 240 cm and 400 cm, where an imaging height (HOV) is equal to or more than 35 cm, an effective diameter of field of view (FOV) is equal to or more than 39 cm, a tube anodic heat capacity of the radiation generating source is equal to or less than 300 KHU, a tube cooling ability is equal to or less than 20 [1/min], and a radiography interval is equal to or less than two (2) minutes.

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11. A radiation imaging apparatus comprising:
a radiation generating source for radiating radiation to a subject;

a rotating unit for rotating the subject
15 exposed to the radiation from the radiation generating source; and

a two-dimensional detector for detecting the radiation;

wherein the radiation generating source and the
20 two-dimensional detector are disposed at locations a distance between which is in a range between 200 cm and 400 cm in a case of imaging a chest area.

12. An apparatus according to any one of claims
25 1 to 3, further comprising a reconstruction unit for reconstructing an output signal from the two-dimensional detector.